

Evaluation of the NC Smoke-free Restaurants and Bars Law



North Carolina. Now serving smoke-free air.

**North Carolina Department of Health and
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Executive Summary

On January 2, 2010, the enclosed areas of North Carolina restaurants and bars became smoke-free under a new Smoke-free Restaurants and Bars Law. The law protects employees and patrons of these businesses from the well-documented health hazards of secondhand smoke.

This report evaluates the impact of the law during the first year after implementation of the law. The major findings of this evaluation show the following:

- Air quality in N.C. restaurants and bars improved 89 percent.
- There was a 49 percent reduction in workers exposed to secondhand smoke in the workplace, declining from 14.6 percent in 2008 to 7.8 in 2010.
- The average weekly emergency room visits by North Carolinians experiencing heart attacks declined by 21 percent during the first year after the Smoke-Free Restaurants and Bars Law was implemented.
- The relative risk of visiting an emergency room for asthma by North Carolinians decreased by 7 percent between 2010-2011 when compared to the risk in 2008-2009.
- The law is popular among North Carolinians, with 83 percent supporting the law.
- Education has been the key to successful implementation. Well-planned state and local educational efforts preceding the law's effective date, helped to increase knowledge of and compliance with the law by businesses and individuals.
- The law has had no impact on the economic productivity of North Carolina restaurants and bars.
- Local health departments in North Carolina have done an outstanding job providing an educational approach to the investigation of and following-up on reported violations and assisting businesses to become compliant with the law.
- Compliance with the law is high among North Carolina businesses, with reported complaints falling dramatically after the first three months of implementation, with very few complaints at one year.
- www.SmokeFree.NC.gov serves as an effective tool for educating affected businesses and the public about the law; providing signs and other resources for businesses; and allowing for online violation reporting.

The law is successfully reducing exposure to secondhand smoke among North Carolina workers, which makes for a healthier workforce and citizenry enjoying healthier longer lives.

Introduction

On January 2, 2010, the enclosed areas of North Carolina bars and restaurants became smoke-free. The Act to Prohibit Smoking in Certain Public Places and Certain Places of Employment, often referred to as the NC Smoke-free Restaurants and Bars Law, was passed by the North Carolina General Assembly and signed into law in May 2009. The purpose of the law is to protect the health of employees and customers of restaurants and bars from the serious health risks related to secondhand smoke.

Under the law, smoking also is prohibited in most enclosed areas of lodging establishments, such as hotels, motels, and inns, if the establishment prepares and serves food or drink. A lodging establishment may designate no more than 20 percent of its guest rooms as smoking rooms. The only other exceptions in the law include cigar bars that meet a list of requirements and non-profit private clubs that also meet specific legal requirements.

Secondhand Smoke is a Health Hazard

A report entitled *The Health Consequences of Involuntary Exposure to Tobacco Smoke*, issued in 2006 by the United States Surgeon General stated that the scientific evidence indicates there is no risk-free level of exposure to secondhand smoke. This means that breathing in even a small amount of smoke from someone else's cigarette or other burning tobacco product could be harmful to you. In issuing the groundbreaking report, then U.S. Surgeon General Richard Carmona said, "The debate is over. The science is clear: Secondhand smoke is not a mere annoyance, but a serious health hazard. Workplace smoking restrictions are effective in reducing secondhand smoke exposure."¹

The scientific data show that breathing secondhand smoke is harmful to nonsmokers and contributes to diseases, disabilities and death. Evidence finds that secondhand smoke causes heart disease, lung cancer, initiation of asthmatic attacks, and a host of other illnesses.¹⁻⁴

It is therefore very important to understand the impact of secondhand smoke on nonsmokers. And since heart disease is one of the leading causes of death in the United States, the Centers for Disease Control and Prevention (CDC) asked the Institute of Medicine to assess the relationship between secondhand smoke and its effects on the heart. In

The scientific data shows that secondhand smoke causes heart disease, lung cancer and a host of other illnesses, and that there is no risk-free level of exposure.

October 2009, the National Institute of Medicine released a report, *Secondhand Smoke Exposure and Cardiovascular Effects: Making Sense of the Evidence*, which showed that:

- Breathing secondhand smoke can cause heart attacks.
- It is possible that breathing secondhand smoke for a short time could trigger a heart attack.
- Comprehensive smoke-free laws are shown to reduce the number of heart attacks that occur in a community.²

Additionally, the 2010 Surgeon General’s Report concluded that any exposure to tobacco smoke – even an occasional cigarette or exposure to secondhand smoke – is harmful. A person does not have to be a heavy smoker or a long-time smoker to develop a smoking-related disease or have a heart attack or asthma attack triggered by tobacco smoke. Low levels of smoke exposure, including exposures to secondhand tobacco smoke, lead to a rapid and sharp increase in dysfunction and inflammation of the lining of the blood vessels, which can cause heart attacks and strokes. Cigarette smoke contains more than 7,000 chemicals and compounds. Hundreds are toxic, and about 70 can cause cancer. Tobacco smoke itself is a known human carcinogen.³ Exposure to secondhand smoke among nonsmokers at home or work increases their chances of developing lung cancer by 20 to 30 percent.¹ Furthermore, in accordance with the Institute of Medicine’s report and the Surgeon General’s report, several studies have found that smoking restrictions, such as workplace smoking restrictions can lead to a large public health impact.⁴⁻¹⁸

Report on NC’s Smoke-free Restaurants and Bars Law

This report provides an assessment of the NC Smoke-free Restaurants and Bars Law.

Objectives of the Report

- Describe the implementation process of NC’s Smoke-free Restaurants and Bars law.
- Assess compliance with the law one year into its implementation.
- Describe impact on indoor air quality in N.C. restaurants and bars before and after the law went into effect.
- Describe the law’s impact on health.
- Illustrate attitudes and behaviors of North Carolinians towards the law after implementation.

State level Implementation Activities

Preparing for Implementation

The implementation plans were based on the intent of the law to bring about compliance through education and a complaint-based system.

Local health directors have the authority to enforce the law. The North Carolina Tobacco Prevention and Control Branch (TPCB), Division of Public Health (DPH), planned for the implementation of the new law in partnership with the NC Association of Local Health Directors, with technical assistance from the UNC School of Government. The implementation plans were based on the intent of the law to bring about compliance primarily through education and by developing a complaint-driven system to notify authorities of potential violations. Therefore, the implementation plan was implemented in several different stages, including developing resources, providing education and training, and generating a system to measure the compliance overtime. Detailed description on these stages is provided below.

1. Leadership and Resources. The TPCB sought and was awarded grant funding from the Americans for Nonsmokers' Rights Foundation to develop and share numerous resources prior to implementation, and continuing into the first year of implementation. In the period between passage and implementation, the North Carolina Division of Public Health worked to write and adopt administrative rules as required by the law, and collaborated with local health departments covering all 100 counties to educate the business community and the general public about the law.

Education of businesses and the public was a key factor in the success.

Business education and outreach included mailing packets to over 24,000 restaurants and bars, and utilizing an educational website, www.smokefree.nc.gov

The public learned about the law through state and local media.

A new website, www.smokefree.nc.gov, was launched in late October 2009. It provided a tool for educating affected businesses about the law; providing signs and other resources for businesses; educating the public about the law; providing the press with updated information, including reported violations; allowing for online violation reporting; and, for a short time, providing a place for the public to leave comments about the law. As of January 2, 2011 (a year after implementation of the law), the website had received 2,107,087 hits. The number of hits to this website has increased to 3,890,747 by November 10, 2013.

2. Business Education. The TPCB partnered with local health departments, the N.C. Restaurant and Lodging Association, the Health and Wellness Trust Fund (HWTF) and others to conduct extensive business education. Business education and outreach included sending out packets to more than 24,000 restaurants and bars. The packets included:

- An informational letter (including information on the new website)
- Smoke-free Air NC – A Guide for Restaurants and Bars
- Sample signage
- Information on QuitlineNC, the state’s telephone cessation service

Additional resources were developed and posted to the website for businesses (and others) to download. These included:

- A consumer brochure
- Fact sheets for various types of businesses included under the law
- A Frequently Asked Questions (FAQ) Tool
- Printable cards to assist restaurants and bars with compliance by customers
- An employee training poster
- Spanish translation of Smoke-free Air NC – A Guide for Restaurants and Bars
- Signage in Spanish and Chinese

3. Public Education. The HWTF developed and placed a radio ad and a TV ad promoting the new law from December 21, 2009 to January 10, 2010. HWTF also produced about 1 million coasters for restaurants and bars to use to explain the new law and promote QuitlineNC. The TPCB distributed the coasters through local health departments.

4. Complaint-based System for Compliance. In collaboration with local health directors, the TPCB developed a complaint-based system of enforcement. Under this system, violations are reported by calling the CARE-LINE*, the local health department or reporting them online at www.smokefree.nc.gov. The TPCB worked in partnership with the Department of Health and Human Services, Office of Citizen Services CARE-LINE to operate a standardized statewide data system for documenting complaints of potential violations of the law.* Implementation rules require the toll-free number and the website to be printed on signage required by law for compliance. The complaint data are shared with local health departments each week for follow-up. The local health departments initiate the appropriate response under the state’s enforcement plan. Compliance data and violation reports are

* CARE-LINE triage service for complaint data being distributed to local health departments was closed due to budget cuts in July 2011. However, the services were continued by the Tobacco Prevention and Control Branch.



Posting a toll-free number and website on the required signage allows for an efficient complaint-based system for enforcement.

then posted online at www.smokefree.nc.gov and updated on a weekly basis.

Training

Prior to the law's effective date, the TPCB conducted four (4) training webinars for enforcement/implementation of the NC smoke-free law. A fifth in the series was completed in February 2011, to address the additional aspect of increased local government authority to further regulate tobacco products on government grounds and in certain public places. Partners for the webinar series were the UNC School of Government, Division of Public Health, North Carolina Department of Justice, and North Carolina Association of Local Health Directors. The training webinars reached specific targeted audiences who had roles in the implementation and/or enforcement of the law, including local health directors, environmental health specialists, health promotion coordinators and other health department staff, and county attorneys.

Local Health Department Implementation Activities

The TPCB sought and received a small grant from the NC HWTF in September 2009 to provide implementation mini-grants to local health departments for the first year. Many local health departments used funds to first increase their own knowledge of the new law, and then to educate the businesses and citizens in their counties. Examples of business education are: including information in Serv-Safe and Lunch-n-Learn classes attended by restaurant owners and managers; “bouncer” education sessions (and materials) for bar employees; delivering business packets to local Health and County Commission Boards, Chambers of Commerce, and Visitors Bureaus; and mailing letters to each effected establishment in the county. Many local health departments, in both urban and rural counties, visited every bar and restaurant in their area to ensure that business owners understood their responsibilities under the new law. They often came bearing gifts, including customer brochures, signs and the free coasters provided by the HWTF (see previous page).

Local health departments reached out to bars and restaurants to ensure that business owners understood their responsibilities under the law.

Education through the media was a large focus of local health department activities to ensure broad-based consumer awareness of the law going into effect. Local health departments were provided tools and support to develop paid media, opinion pieces, and to respond to media requests. Media messages were seen in traditional areas (print,

TV, and radio), and in non-traditional areas such as mobile billboards, Facebook pages, and theater slides.



Billboard art created by Guilford County Department of Public Health



Billboard art created by Buncombe County Public Health Department



Billboard art created by Carteret County Health Department

Evaluation of the Smoke-free Restaurants and Bar Law

Over the years, the TPCB has conducted a thorough evaluation of the NC smoke-free restaurants and bars law. The evaluation team measured compliance with the law, evaluated the indoor air quality before and after the law was implemented, examined the rate of secondhand smoke exposure at work, studied the health impact of the law by looking at the rate of emergency room visits for heart attacks as well as looking at health cost analysis, economic impact, and assessed public support for the law. The results of these evaluation studies, provided below, are aligned with studies conducted by other jurisdictions.⁴⁻¹⁸ The results indicate this law has a substantial positive impact on public health.

Compliance and Enforcement

The NC Smoke-free Restaurants and Bars Law is being implemented with a high level of compliance and few reported complaints of potential violations. Figure 1 shows the total monthly complaints for businesses with a potential violation of the law and the total number of businesses named in the complaint reported from January 2010 through December 2010. The statewide data show that the number of complaints reported about potential violations has dramatically decreased since January-February 2010, just after the law went into effect. This reduction in the number of complaints reported and potential violations has continued over the years. Even though there was a slight increase in the number of reported complaints and potential violations in early 2011, by the end of 2012, the number of reported complaints and potential violations was reduced to fewer than 10 complaints per month, as shown in Figure 2. The number of reported complaints and potential violations remains fewer than 10 complaints per month in January to November of 2013.

Figure 1:

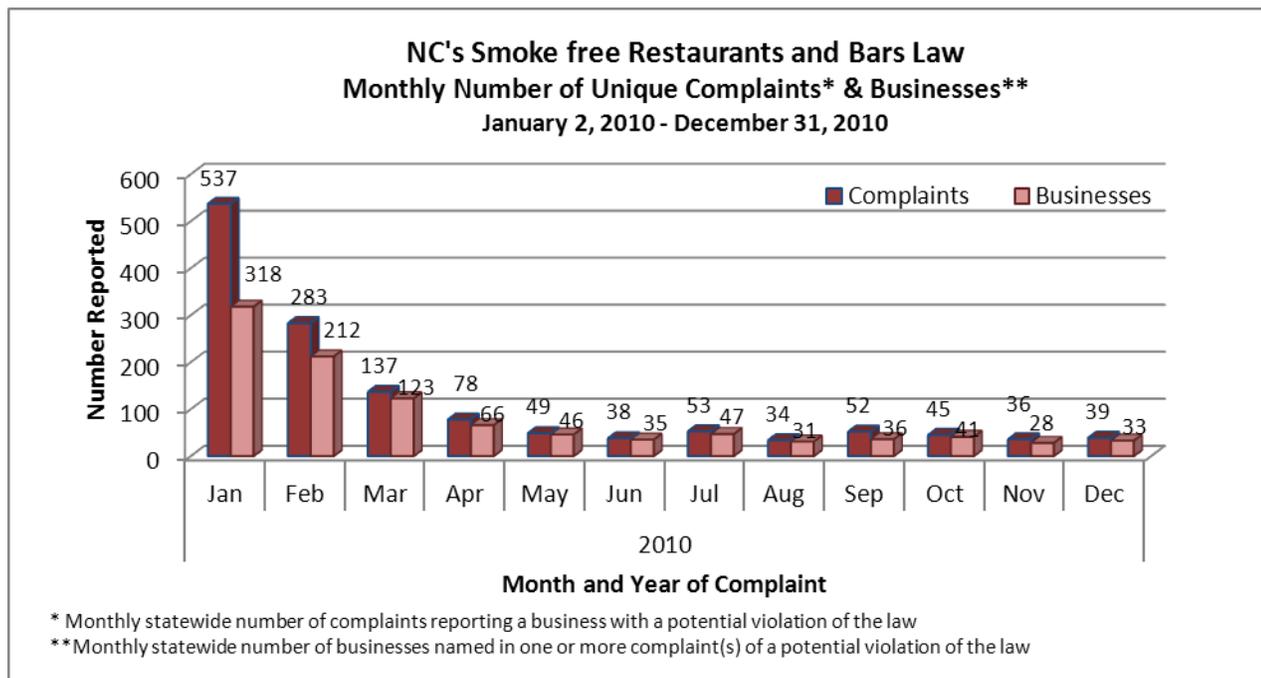
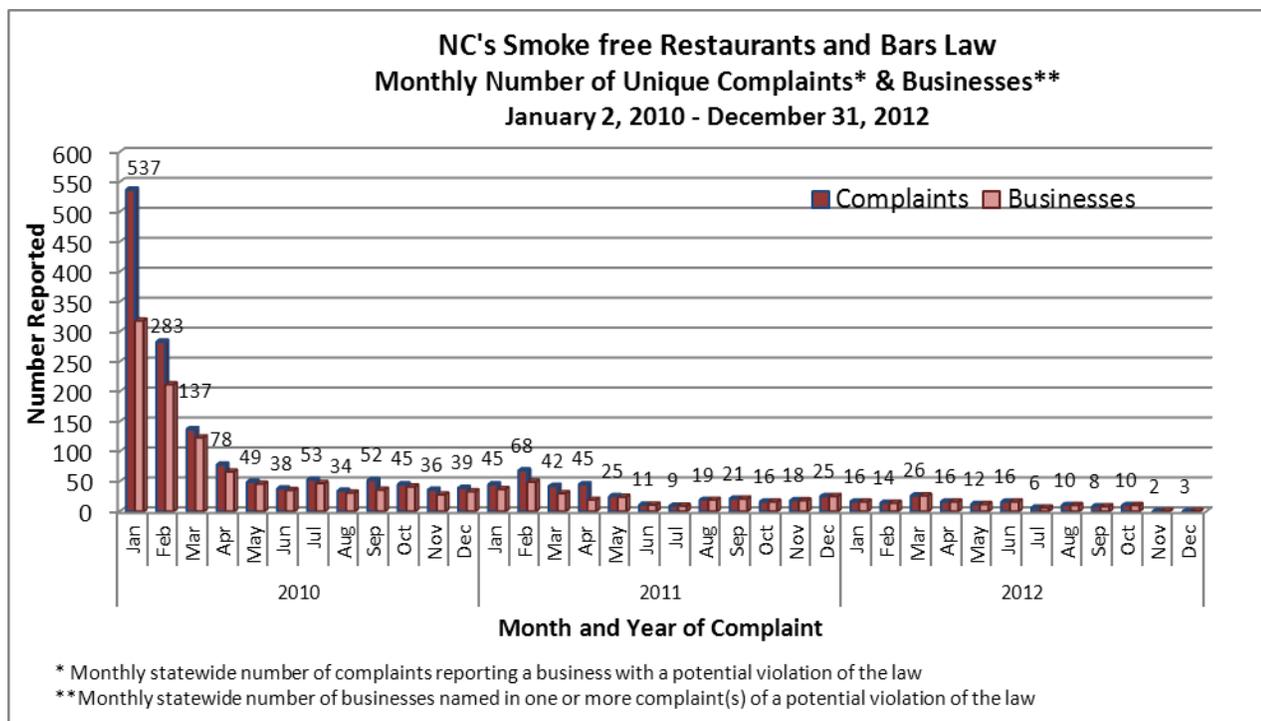


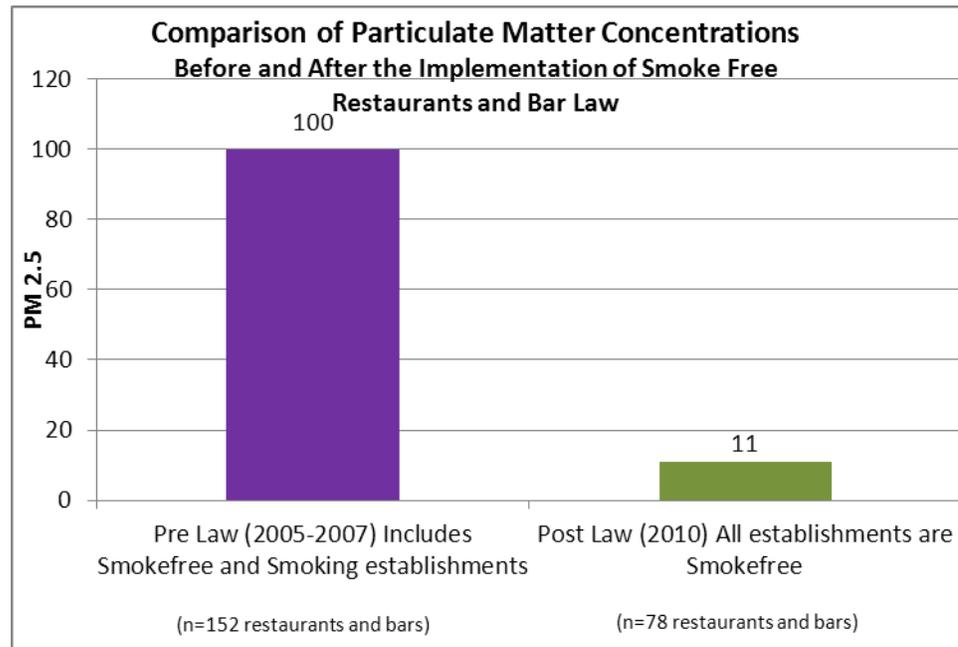
Figure 2:



Changes in Air Quality Before and After the Law

Several studies have shown that smoke-free policies such as the NC restaurants and bars law improve air quality and decrease indoor air pollution.¹⁷⁻¹⁹ The N.C. Smoke-free Restaurants and Bars law resulted in an 89 percent improvement in air quality inside restaurants and bars, according to study results released by the N.C. Division of Public Health in April 2010 (See Figure 3).

Figure 3:



Air quality inside N.C. restaurants and bars improved by 89 percent after the law took effect.

The baseline for the air quality study was conducted in six North Carolina counties from 2005 to 2007, when the air in 152 restaurants and bars was tested prior to the smoke-free law's passage. The new data were collected from 78 restaurants and bars from January to March, 2010 in seven North Carolina counties.

Increase in Smoke-free NC Worksites

There has been a 49 percent drop in N.C. workers reporting exposure to secondhand smoke in the workplace after the law went into effect in 2010.

Data from the NC Behavioral Risk Factor Surveillance Study (BRFSS) show that NC workers reporting exposure to secondhand smoke at work in the past seven days had been reduced from 14.6 percent in 2008 to 7.8 percent (a 49 percent reduction) in 2010. Due to change in the methodology of BRFSS, 2011 and 2012 data on NC workers reporting exposure to secondhand smoke at work cannot be compared to previous years.²⁰ The statewide smoke-free restaurants and bars law contributed to this important reduction in secondhand smoke exposure among workers. This is especially important because the workplace is a major source of secondhand smoke exposure for adults.

Economic Impact of the Smoke-free Law

A new study published in the scientific journal *Preventing Chronic Disease* finds that North Carolina's smoke-free restaurants and bars law had no adverse economic impact on overall restaurant and bar business in the state. The study showed no impact of the law on restaurant and bar employment or sales. The analysis, which included nine states, used local employment and sales revenue data. This study is the largest of its kind, bringing together all available data from North Carolina and local jurisdictions in the other studied states.^{21, 22} The findings are consistent with the results of previous peer-reviewed studies, which have found that smoke-free laws do not have a negative economic impact on the hospitality industry. The study results also echo the personal experiences of North Carolina restaurant and bar owners, who are featured in a related video discussing their experiences operating under the state law. Both the research and the video production were funded by the CDC Foundation.

An additional independent economic analysis was conducted to evaluate the impact of the smoke-free law on restaurant and bar income during the first year after implementation compared to previous ten years. This study found that there was no statistically significant difference in restaurants' and bars' income. In fact, the results found that the law had a positive impact on restaurants' and bars' income.^{21 22}

This positive outcome from the smoke-free law is also stated by the North Carolina Restaurant and Lodging Association in a letter sent to the members of the North Carolina General Assembly in October 2012. In the letter, the Association wrote, "the smoking ban has had a positive impact on restaurant sales in North Carolina since its implementation. One operator, for example, reported that his sales

went down in the month following the ban's effective date, but bounced back to pre-ban levels the next month and have since grown 25-20 percent over 2009 levels."²³ This suggests that even after three years, the smoke-free law has not hurt economic productivity of the restaurant and bar industry.

Health Impact of the Smoke-free Law

Secondhand smoke is a known trigger for other health conditions like asthma, stroke, and chest pain, and is a major risk factor for lung cancer, the state's leading cause of cancer deaths.^{1-3, 24} Major studies have shown that smoke-free laws that ban smoking in public places like bars and restaurants help improve the health of workers.^{4-6, 12-14, 17} Additional studies conducted in several communities, states, regions, and countries have found that implementing comprehensive smoke-free laws that make all workplaces and public places smoke-free are associated with rapid, substantial and sustained reductions in emergency visits for asthma and hospital heart attack admissions. These reductions appear to be more pronounced among nonsmokers than smokers.^{8-11, 15-17, 25-28}

In 2009 the Institute of Medicine published a comprehensive review of the existing literature on smoking bans and acute coronary events.² After a year of analysis, the panel of 11 experts concluded that the evidence is consistent with a causal relationship between secondhand smoke exposure and heart attacks, and that even brief exposure to secondhand smoke could trigger a heart attack. Two separate reports developed a pooled estimate that heart attack hospitalizations could decrease by 17 percent within one year of a comprehensive smoking ban.⁷⁻⁸

A similar analysis conducted in North Carolina found that the average weekly emergency room visits by North Carolinians experiencing heart attacks declined by 21 percent during the first year after the Smoke-Free Restaurants and Bars Law was implemented in January 2010.²⁷ From 2010 to 2012, the number of total emergency room visits with a first-listed diagnosis of heart attack has decreased.

A team of researchers from the Division of Public Health and the University of North Carolina Department of Emergency Medicine used statewide emergency department data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) to examine rates of heart attack emergency room visits before the law in 2008 and 2009 compared to rates after the law took effect in 2010.

The decline in heart attacks in North Carolina in 2010 represents an estimated \$3.3 to \$4.8 million in annual health care cost savings.²⁸

For the full report, go to:

<http://tobaccopreventionandcontrol.ncdhhs.gov/smokefreenc/docs/TPCB-2011SFNCReport-SHD.pdf>

Secondhand tobacco smoke is also a well-documented environmental trigger for the developing asthma symptoms among adults and children in the United States. Eliminating secondhand smoke exposure decreases asthma severity, emergency department (ED) visits, and hospitalizations among nonsmoking adults with asthma.⁹ After a smoke-free law went into place in Lexington KY, a University of Kentucky research study reported a 22 percent decline in emergency department visits for asthma in the 32 months following implementation. The decline was greater for adults than children (24 percent vs. 18 percent).¹⁰

North Carolina Division of Public Health completed a similar study using statewide emergency department data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). North Carolina Division of Public Health saw that after controlling for outdoor environmental factors such as air quality, temperature, allergic rhinitis (seasonal allergies), and seasonal patterns of asthma, the risk of having an emergency visit for asthma decreased by seven percent when emergency department visit rates were compared before the law in 2008 and 2009 to after the law took into effect in 2010 and 2011. Contrary to the study done in Lexington KY, North Carolina study saw a greater decline for children (under 18) than adults (7 percent vs. 4 percent). North Carolina study also found that the risk of having an emergency visit for asthma decreased largely among urban counties than rural counties (11 percent vs. 4 percent).

These add to a growing number of studies documenting the health benefits of smoke-free legislation across the nation and the world.

Health Cost Savings

In March 2011, the North Carolina Health and Wellness Trust Fund (HWTF) released its first benefit-cost analysis (BCA) for HWTF programs. The report was conducted by Chenoweth and Associates, Inc., an independent evaluator specializing in health econometrics. In the report, Chenoweth and Associates documented the calculations for the benefit-cost for the NC Smoke-free Restaurants and Bars law. *This BCA was included solely for informational purposes and are not attributed to HWTF's tobacco cessation efforts.*²⁹

N.C. Restaurants and Bars are estimated to save **nearly \$4.7 million per year in avoidable medical care costs for hospitality workers.**

Based on the benefit-cost computation, it is estimated that eliminating smoking in North Carolina’s restaurants and bars will save nearly \$4.7 million per year in avoidable medical care costs for hospitality workers.²⁹

Quitting Smoking

QuitlineNC is an evidence-based telephone tobacco dependency treatment program at 1-800-Quit-Now (1-800-784-8669). This service is confidential and available to all North Carolina tobacco users. Most smokers want to quit. Sixty percent of NC smokers made a serious but failed attempt to quit in 2009.³⁰ “These smokers need a supportive environment and help to quit smoking” according to Sally Herndon, head of the Tobacco Prevention and Control Branch in the NC Division of Public Health (DPH).

QuitlineNC had its highest call volume at that time in 2010, following implementation of the smoke-free restaurants and bars law. QuitlineNC heard from 9,840 callers in 2010, compared with 5,685 callers in 2009, according to data released by the N.C. DPH.

Other factors besides the law contributed to the increase in calls, such as a State Health Plan program to provide nicotine replacement therapy to members who use QuitlineNC and promotion of QuitlineNC through media placements.

“These numbers show that QuitlineNC is a great investment in North Carolina’s health,” stated then State Health Director Dr. Jeff Engel. “Evidence shows us that smokers who get counseling are more likely to be successful in quitting. The smoke-free restaurants and bars law is another incentive for smokers to go ahead and make that quit attempt.”

Support for NC's Smoke-free Air Law

The majority of adult North Carolinians (83 percent) support the smoke-free restaurants and bars law.

According to a July 2010 report released by the University of North Carolina at Chapel Hill's Gillings School of Global Public Health, Department of Biostatistics, the majority of adult North Carolinians (72 percent) support the restaurant and bar smoke-free law. Supporters in the survey were more likely to be nonsmokers, though some smokers also stated that they were in favor of the ban.³¹ About 39 percent of the respondents said they dine out more since the smoking ban went into effect, while only 11 percent said they eat out less.³² Additionally, in 2012 an independent study by Public Opinion Strategies found that North Carolinians are even more supportive of the law with 74 percent respondents supporting the law in 2011 and 83 percent respondents supporting the law in 2012.³¹

The public support for this law was also noted in many daily newspapers published editorials touting the anniversaries of smoke-free law. These editorials expressed community support for the law. Below are excerpts from the newspaper editorials across the state.

- “Has it really only been one year since the start of North Carolina's ban on smoking in restaurants? The clean air has been so refreshing that it seems like much longer.” *Winston-Salem Journal* 12-31-10
- “Legislators should pay close attention to the improvements in air quality the new law has brought, and extend coverage of the existing law to nonprofit clubs not covered by the law.” *Charlotte Observer* 1-3-11
- “It's been a good year to breathe in North Carolina.” *Winston-Salem Journal* 12-31-10
- “‘A’ to the indoor smoking ban for restaurants and bars actually working and people responding well to it.” *Asheville Citizen-Times* 1-4-11
- “It’s been a pleasant two years for those among us who like to eat out or visit a tavern, but don’t care for the smell and taste of cigarette smoke.” *High Point Enterprise* 1-18-12
- “The line is pretty clear. Patrons of restaurants and bars shouldn’t be forced to take their order with a side of secondhand smoke.” *Wilmington Star-News* 3-22-12
- After all the fussing and fuming over a state law that bans smoking in bars and restaurants, the evidence about the law's real effect is in. It's great news: The ban is saving lives. *Fayetteville Observer*, 11-20-11

The support for the law does not only come from the public, the hospitality industry is also very supportive of maintaining the smoke-free law. The North Carolina Restaurant and Lodging Association stated in October 2012, “As a whole, our industry has been very pleased with the impacts of the General Assembly’s statewide smoking ban, both in terms of its effect on restaurant revenue as well as the fairness with which the law has been applied. The hospitality industry has been very pleased with the level playing field created by the law.”²³ The North Carolina Restaurant and Lodging Association represents 17,000 restaurants (401,700 employees, roughly 10 percent of the state’s workforce) that operate within North Carolina.

Major Conclusions

North Carolina’s smoke-free restaurants and bars law is being successfully implemented based on the complaint system data and the support of local health departments.

The indoor air quality in the state’s restaurants and bars has significantly improved, making the air inside healthier to breathe.

The average weekly emergency room visits by North Carolinians experiencing heart attacks declined by 21 percent between 2010-2011.

The relative risk of visiting an emergency room for asthma by North Carolinians decreased by 7 percent between 2010-2011 when compared to the risk in 2008-2009.

While the implementation of this law reduced worker exposure to secondhand smoke significantly, there is more work to be done; since 8.4 percent of North Carolinians reported they were still exposed to the serious health risks of secondhand smoke in their workplaces on a weekly basis in 2011.

The law is a major public health accomplishment and will significantly reduce tobacco-related diseases and deaths in the state.

There is very strong public support for the law.

There is no negative economic impact of the law.

The N.C. Restaurant and Lodging Association reports that “this ban has had an overall positive effect on restaurants and hotels in North Carolina, and it has been very well received by the public.”

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